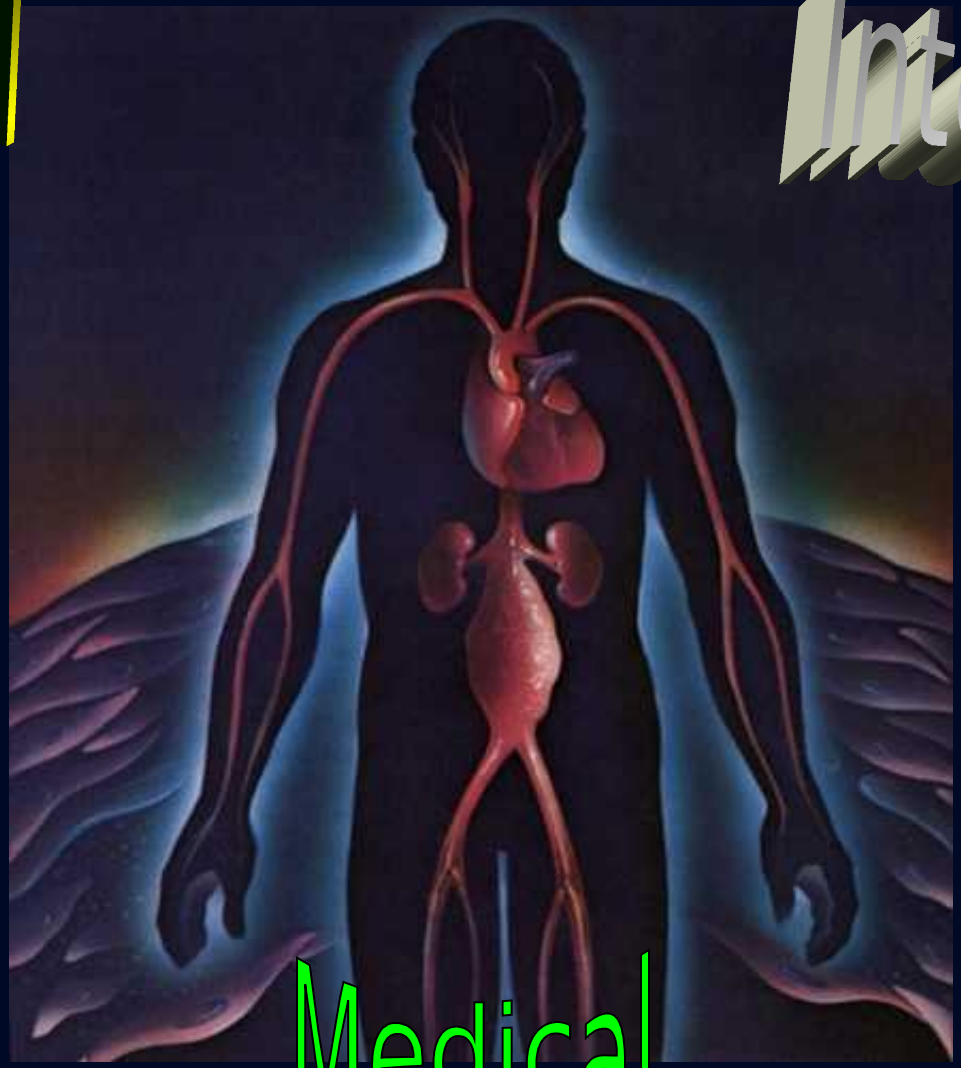
Renal Artery Stenosis

Treatment

Surgical

Interventional



Medical

Renal Artery Stenting

Literature Review

Authors	N	Complications	Success	Restenosis	F/U
Rees (1991)	28	18%	96%	39%	6
Joffre (1992)	16	18%	94%	6%	20
Hennequin (1994)	21	19%	90%	20%	29
MacLeod (1995)	29	34%	100%	16%	6
Dorros (1995)	76	7%	100%	25%	6
Tullis (1997)	12	NR	83%	44%	12
Blum (1997)	68	4%	100%	11%	27
Mean	36	17%	95%	25%	15

Renal Artery Stenting

Literature Review

- Clinical Outcomes
  - Hypertension response

Author	Cured	Improved	No change
Rees	11%	54%	35%
Joffre	29%	59%	12%
Hennequin	14%	86%	---
MacLeod	---	44%	56%
Blum	16%	62%	22%
Mean	14%	61%	31%

Renal Artery Stenting

Literature Review

- Clinical Outcomes
  - Renal function

Author	Improved	No change	Deteriorated
Rees	36%	36%	28%
Joffre	50%	33%	17%
Hennequin	17%	50%	33%
MacLeod	25%	44%	31%
Dorros	30%	48%	22%
Mean	32%	42%	26%

Renal Artery Stenting

Materials and Methods

- Reviewed records of 21 consecutive patients, 1994-present
- All ostial atherosclerotic renal artery stenosis
- Performed by Cardiology, IR, Vascular Surgery
- Patient follow-up: BP, serum creatinine, renal duplex or arteriogram

Renal Artery Stenting

Material and Methods

- Technique
  - 8 French renal guiding catheter
  - Predilate lesion with undersized balloon
  - Proximal stent 1-2 mm into aorta
  - Intravascular ultrasound used selectively

Renal Artery Stenting

Results

- Patient demographics
  - 21 patients (11 men, 10 women)
  - Mean age 63 ± SD 11.3
  - Mean follow-up 13.4 ± SD 6.5 months

Renal Artery Stenting

Results

- Procedural indications
  - all patients hypertensive
  - baseline MAP 117
  - 9 patients (43%) baseline creatinine $\geq$ 1.5

Renal Artery Stenting

Results

- Procedural data
  - 33 stents placed in 25 arteries
  - 4 patients with bilateral procedures
  - Palmaz stent sizes: P104 1
    P154 21
    P204 9
  - 6 patients underwent IVUS

Renal Artery Stenting

Results

- Patient comorbity # (%)
  - coronary artery disease 18 (86)
  - tobacco use 15 (71)
  - other vascular procedures 10 (48)
  - hypercholesterolemia 6 (29)
  - diabetes 6 (29)
  - stroke 4 (19)
  - congestive heart failure 2 (9)
  - atrial fibrillation 2 (9)

Renal Artery Stenting

Results

- Complications
  - pseudoaneurysm — 2 (1 brachial, 1 femoral)
  - renal artery dissection — 2 (additional stent)
  - renal failure — 1 (hemodialysis)
  - cholesterol emboli — 1 (repeat arteriogram)
- Technical success
  - 95% initial success

Renal Artery Stenting

Results

- Hypertension Response
  - improved 53%
  - no change 47%
  - MAP: pre 117 ± SD 13.4 (p = .002)
    post 103 ± SD 12.8
  - # BP meds: pre 3.1 ± SD 0.13 (p = .056)
    post 2.7 ± SD 0.25

Renal Artery Stenting

Results

- Renal Function
  - improved 33%
  - no change 62%
  - deteriorated 5%

Renal Artery Stenting

Results

- Restenosis
  - 16 patients with F/U imaging
  - 8 patients with restenosis

Renal Artery Stenting

Discussion

– Hypertension response

	Cured	Improved	No change
Fiala	---	53%	47%
Stenting	14%	61%	31%
Surgery*	15%	75%	10%

*Hansen et al, JVS 1992;16

Renal Artery Stenting

Discussion

- Renal function

	Improved	No change	Deteriorated
Fiala	33%	62%	5%
Stenting	32%	42%	26%
Surgery*	49%	36%	16%

*Hansen et al, JVS 1992;16

Renal Artery Stenting

Discussion

- Restenosis rate: Fiala 65%
  Stenting 25%
  Surgery* 3%

*Hansen et al, JVS 1992;16

Surgery Compared with Medical Management

	#Pts	Survival
Surgery	100	84%
Medical	114	66%

Hunt and Strong, Am J Cardiol 1973

Renal Artery Stenosis

Summary

- Initial technical success high with limited complications for renal stenting
- Durability is poor, high restenosis rate
- Mortality of surgery in pts with diffuse atherosclerosis is significant(9%)
- Hypertension and renal function response inferior to surgical revascularization
- Recommend surgical revascularization in good risk patients

MEDICAL DEPARTMENT
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